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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,855	05/16/2006	Manuele Bigi	(72NP) 157206	7943
53082 7590 General Electric Company Global Patent Operation 187 Danbury Road, Suite 204 Wilton, CT 06897-4122			EXAMINER EASTMAN, AARON ROBERT	
			ART UNIT 3745	PAPER NUMBER
			NOTIFICATION DATE 07/24/2008	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gpo.mail@ge.com

# Office Action Summary

**Application No.**

10/595,855

**Applicant(s)**

BIGI ET AL.

**Examiner**

Aaron R. Eastman

**Art Unit**

3745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 May 2006.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-4 is/are rejected.  
7) ☒ Claim(s) 5-14 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 16 May 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-85/86)  
Paper No(s)/Mail Date 07/16/2006  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the first side surface (13) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to under 37 CFR 1.83(a) because they fail to show the first side surface (13) as described in the specification. Any structural detail that is

essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to under 37 CFR 1.83(b) because they are incomplete. 37 CFR 1.83(b) reads as follows:

When the invention consists of an improvement on an old machine the drawing must when possible exhibit, in one or more views, the improved portion itself, disconnected from the old structure, and also in another view, so much only of the old structure as will suffice to show the connection of the invention therewith.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended

replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance. The drawings do not illustrate the invention in relation to the casing, stator(s) or rotor(s).

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 13. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and

informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

5. In addition to Replacement Sheets containing the corrected drawing figure(s), applicant is required to submit a marked-up copy of each Replacement Sheet including annotations indicating the changes made to the previous version. The marked-up copy must be clearly labeled as "Annotated Sheets" and must be presented in the amendment or remarks section that explains the change(s) to the drawings. See 37 CFR 1.121(d)(1). Failure to timely submit the proposed drawing and marked-up copy will result in the abandonment of the application.

***Specification***

6. The specification is objected to for failing to specify the reference(s) from which it claims priority in the first sentence after the title as pointed out in 37 CFR 1.78(a)(2)(iii).

7. The disclosure is objected to because of the following informalities: The first full paragraph of page 3 states that the stator is rotated as a result of the gas. A stator by definition is a static part and therefore does not rotate. The "axial curvature radius" and the "axis of the turbine" are both given reference number 70 (see pages 7 and 8). The second full paragraph states that sheet (20) is equipped with a series of pass-through holes (21). The pass-through holes (21) are not shown as being part of sheet (20) in any of the figures.

Appropriate correction is required.

8. Claim 1 is objected to because of the following informalities: A "first side surface" is claimed but not shown in the drawings or sufficiently explained in the specification (see objections above). Appropriate correction is required.

***Claim Objections***

9. Claims 5-14 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent Number 5,127,793 (Walker et al. hereinafter).

12. In re claim 1 Walker et al. discloses a protection device for a stator of a turbine comprising a series of annular sectors (30) which can be coupled by means of connection means, each sector (30) comprising a first side surface (13) which has at least one cavity (C) equipped with a bottom, characterized in that each bottom of said at least one cavity (C) is convex and in that each sector (30) comprises at least one stiffening rib (31) positioned inside said at least one cavity (C) and having a variable section in a longitudinal direction to modulate the rigidity of each sector (30).

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13. In re claim 2 Walker et al. discloses the protection device according to claim 1, characterized in that said bottom is convex in a circumferential and/or axial direction (see Fig.'s 4 and 4c).

***Claim Rejections - 35 USC § 103***

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claim(s) 3 and 4 is/are rejected under 35 U.S.C. § 103 (a) as being unpatentable over Walker et al. Walker et al. discloses all of the limitations of claims 1 and 2 on which claims 3 and 4 depend. However, Walker et al. does not expressly disclose that the convex bottom has an apex which in an axial section has an axial curvature radius which, divided by the radius of the rotor, has a value preferably ranging from 0.221 to 0.229 (in re claim 3) nor that this ratio has a value equal to 0.260 (in re claim 4).

16. At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to design the convex bottom which has an apex which in an axial section has an axial curvature radius which, divided by the radius of the rotor, has a value preferably ranging from 0.221 to 0.229 (in re claim 3) and that this ratio has a value equal to 0.260 (in re claim 4) because Applicant has not disclosed that the convex bottom which has an apex which in an axial section has an axial curvature radius which, divided by the radius of the rotor, has a value



preferably ranging from 0.221 to 0.229 (in re claim 3) and that this ratio has a value equal to 0.260 (in re claim 4) provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with the curvature disclosed by walker (Fig.'s 4 and 4c) because it sufficiently encloses the turbine blades and stators. Therefore, it would have been an obvious matter of design choice to modify Walker et al. to obtain the invention as specified in the claim [(s)].

### ***Conclusion***

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent Numbers 3146992, 3346175, 3730640, 4177004, 4222707 and 6607350, US Patent Application Numbers 2005/0089401 and 2005/0276690 as well as EP 1178182 and EP 1225305 all disclose a turbine shroud with a cavity and a rib. US Patent Numbers 3408044, 3860358, 4032253, 4135851, 4784569, 5071313, 6340285, 6340286, 6361273 and 6390769, US Patent Application Number 2004/0005216 and JP 62-153504 all disclose a turbine shroud with a cavity and a rib that is convex. US Patent Number 3146992 and JP 62-153504 also disclose cooling holes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron R. Eastman whose telephone number is (571)270-3132. The examiner can normally be reached on Mon-Thu 9:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Aaron R. Eastman/  
Examiner, Art Unit 3745

/Edward K. Look/  
Supervisory Patent Examiner, Art Unit 3745